

Anaesthesia Career Interest Among Medical Students

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Abstract

➤ *Introduction:*

Anaesthesia is critical to surgical safety and emergency care, yet it remains an underrepresented career choice among medical graduates in low- and middle-income countries like Sierra Leone. Factors such as limited undergraduate exposure, lack of mentorship, and misconceptions about the specialty contribute to this trend. Understanding the perceptions of medical students is essential to addressing the workforce gap.

➤ *Methods:*

A prospective, cross-sectional, descriptive study was conducted between January and May 2025 among final-year (Part I and II) MBBS students at the College of Medicine and Allied Health Sciences (COMAHS), University of Sierra Leone. Using Slovin's formula and quota sampling, 139 students were selected. Data were collected using structured questionnaires covering

demographics, knowledge, awareness, and career preference. Quantitative data were analyzed using SPSS, while open-ended responses were analyzed thematically. Ethical approval and informed consent were obtained.

➤ **Results:**

All participants (100%) were aware of Anaesthesiology, but only 2.9% rated their knowledge as "very good." Only 4.3% of students expressed interest in pursuing the specialty, while 61.9% were undecided. Most became aware of Anaesthesiology during their fourth year. Misconceptions were common, including beliefs that anaesthetists have limited patient interaction and work exclusively in operating theatres. Subspecialty recognition was limited. Students cited improved mentorship (48.9%) and enhanced teaching (30.9%) as motivators for career consideration.

➤ **Conclusions:**

Despite universal awareness, interest in Anaesthesiology as a career among final-year medical students at COMAHS remains low due to limited exposure, weak mentorship, and prevalent misconceptions. Interventions such as early curricular integration, structured mentorship, and awareness campaigns are needed to improve interest and recruitment into the field.

Keywords: Anaesthesiology, Career Choice, Medical Students, Mentorship, Perception, Sierra Leone, Undergraduate Training, COMAHS, Specialization, Awareness.

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I. INTRODUCTION

Anaesthesiology is a critical medical specialty responsible for the provision of anaesthesia care before, during, and after surgical or diagnostic procedures. It encompasses the administration of general, regional, local, and monitored anaesthesia care to ensure analgesia, amnesia, hypnosis, and muscle relaxation (Okeke et al., 2024a). While traditionally associated with the operating theatre, the field has expanded significantly to include trauma care, intensive care management, and chronic pain services (AlKhilawi et al., 2018; India et al., 2019). Anaesthetists play a vital role in enhancing surgical safety, ensuring perioperative patient care, and improving health outcomes (Yu, n.d.; NHS, 2021).

Despite its evolving importance, anaesthesia is often perceived as less prestigious or visible compared to other clinical specialties. This perception contributes to its underrepresentation in career choices among medical students, particularly in low- and middle-income countries (Agarwal et al., 2015; Shahbaz and Howard, 2024). Factors such as inadequate undergraduate exposure, lack of mentorship, and persistent misconceptions about the scope of the profession continue to deter students from considering anaesthesiology as a career path (Walsh et al., 2023; Okeke et al., 2024a).

Globally, there is a growing demand for anaesthesiologists, especially in regions with acute workforce shortages. The World Health Organization (WHO, 2018) reports that Africa has one of the lowest anaesthesiologist-to-patient ratios. Sierra Leone, for instance, has fewer than 10 anaesthesiologists for a population of over 8 million, equating to approximately 0.1 per 100,000, which is significantly lower than the WHO's recommended minimum of 20 per million (World Bank, 2020; Afolabi et al., 2019). Consequently, up to

90% of surgeries in the country are performed without a trained anaesthesiologist, increasing the risk of poor surgical outcomes and high perioperative mortality (Vaughan et al., 2015; Holmer et al., 2019; Mullan et al., 2017).

International studies have revealed contrasting perceptions of anaesthesia among medical students. In Canada, students demonstrated a positive attitude due to structured exposure (Walsh et al., 2023), whereas in Saudi Arabia, despite adequate knowledge, most students held negative views of the specialty (AlKhilawi et al., 2018). In Nigeria, 68.2% of students acknowledged the relevance of anaesthetists, though misconceptions persisted, with some students wrongly assuming anaesthetists were subordinate to nurses or restricted to theatre roles (Okeke et al., 2024a).

In Sierra Leone, no known studies have comprehensively assessed final-year medical students' knowledge, interest, and perception of anaesthesiology as a career option. Given the country's critical shortage of anaesthesia professionals and high surgical burden, it is imperative to explore students' awareness and attitudes toward the specialty.

This study aims to investigate and analyze the perceptions and interest of final-year medical students at the College of Medicine and Allied Health Sciences (COMAHS), University of Sierra Leone, in pursuing anaesthesiology as a career. It also seeks to identify key factors influencing their decisions, including educational exposure, mentorship, and prevailing misconceptions, with the goal of informing policy and educational strategies to improve recruitment into this essential specialty (Toye et al., 2019).

II. METHODS

➤ Study Aim, Design and Setting

This study aimed to investigate the interest and perception of final-year medical students at the College of Medicine and Allied Health Sciences (COMAHS), University of Sierra Leone (USL), towards Anaesthesiology as a potential career pathway. A prospective, cross-sectional and descriptive design was employed, allowing data collection at a single point in time to capture current views and levels of awareness (Okeke et al., 2024a). The descriptive nature of the study enabled interpretation of participants' responses without manipulating variables or establishing causal relationships.

The study was conducted at COMAHS, the leading institution for medical education in Sierra Leone. Its position as the country's premier medical school makes it a suitable site for evaluating students' perceptions, as it reflects the future trends of medical specialization in the country.

➤ Study Duration

The research was carried out over a period of five months, from January to May 2025, to ensure ample time for participant selection, questionnaire administration, and data analysis.

➤ Study Population and Sample Size

The population included all 5th- and 6th-year (Part I and Part II) MBBS students at COMAHS for the 2024–2025 academic year. These students were chosen because they are at the decision-making stage regarding specialty choices. The total population (N) was 189 students: 105 in 5th year and 84 in 6th year. Using Slovin's formula with a 5% margin of error ($e = 0.05$), a minimum sample size of 128 was calculated. After adjusting for a 10% attrition rate, the final sample size was 139.

➤ Sampling Technique

A random sampling method was employed to ensure unbiased participant selection. Quota sampling was used to allocate participants proportionally across both year groups. Using the formula

$$\text{Quota} = (\text{189 Class Size}) \times 139$$

resulted in 77 participants from the 5th year and 62 from the 6th year. Rosters were used to randomly select students, ensuring equal representation and enhancing the study's generalizability.

➤ Eligibility Criteria

- Inclusion Criteria:
 - ✓ Final-year (Part I and II) MBBS students enrolled at COMAHS during the 2024–2025 academic year.
 - ✓ Students who had completed at least one clinical rotation in Anaesthesiology.

- Exclusion Criteria:

- ✓ Students who declined to participate.
- ✓ Students are absent during the data collection period.

➤ Data Collection Instruments

A structured questionnaire containing both open- and closed-ended questions was used. The tool assessed participants' demographics, knowledge, awareness, perception, and interest in Anaesthesiology. The questionnaire was reviewed and approved by the academic supervisor. Some questions were adapted from previous studies, while others were original (Agarwal et al., 2015; Okeke et al., 2024a).

➤ Data Collection Procedure

Rosters were obtained for both classes, and participants were selected using systematic random sampling of every second or third student on the list. The questionnaire was distributed in both print and online formats, depending on accessibility. Data were collected anonymously, and informed consent was obtained.

➤ Data Analysis

- Quantitative data were analyzed using descriptive statistics such as frequencies and percentages. Comparative analysis was done by variables like gender to identify differences in perception. The data were analyzed using SPSS and Microsoft Excel.
- Qualitative data from open-ended responses were analyzed using content analysis. Recurring themes and patterns were identified to interpret students' attitudes toward Anaesthesiology (Toye et al., 2019).

III. RESULTS

This section presents the results of the study involving 139 final-year medical students from the College of Medicine and Allied Health Sciences (COMAHS), University of Sierra Leone. The findings are organized according to the study's specific objectives: (1) to assess knowledge and level of awareness of Anaesthesiology, (2) to determine students' interest in Anaesthesiology as a career, (3) to explore influencing factors, and (4) to identify common misconceptions and perceived barriers. Descriptive statistics such as frequencies and percentages are used to summarize the data.

➤ Sociodemographic Characteristics

Table 1 summarizes the sociodemographic characteristics of the study participants. Most students (61.2%) were aged between 24–27 years, while only 1.4% were between 18–23 years, and 2.9% were above 36 years. This indicates that most respondents were within the typical age range for final-year medical students.

The study population was predominantly male (64.7%), with females accounting for 35.3%. Most of the students were single (85.6%), while 14.4% reported being married. In terms of academic level, 55.4% of respondents were enrolled in

Final Year Part I (5th Year Medicine), and 44.6% were in Final Year Part II (6th Year Medicine). These demographics reflect the typical composition of final-year medical cohorts at COMAHS.

Table 1: Sociodemographic Characteristics of Respondents (N = 139)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	18–23	2	1.4%
	24–27	85	61.2%
	28–32	46	33.1%
	33–36	2	1.4%
	>36	4	2.9%
Sex	Male	90	64.7%
	Female	49	35.3%
Marital Status	Single	119	85.6%
	Married	20	14.4%
Class/Level	Final Year Part I (5th Year)	77	55.4%
	Final Year Part II (6th Year)	62	44.6%

IV. KNOWLEDGE AND AWARENESS OF ANAESTHESIOLOGY

➤ Awareness

All respondents (100%) indicated that they were aware of Anaesthesiology as a distinct surgical specialty. This high level of general awareness suggests that final-year students are familiar with the existence of Anaesthesiology. However, the timing of this awareness varied. A significant proportion of students (approximately 60%) reported becoming aware of Anaesthesiology in their fourth year of study. Only 14.4% had prior knowledge of the specialty before entering medical school, while 10.8% learned about it in their third year. A negligible number reported awareness in years one, two, or after the fifth year. These findings suggest that structured exposure to Anaesthesiology tends to occur relatively late in the curriculum, likely due to the timing of clinical rotations.

➤ Knowledge

Although awareness was universal, the depth of knowledge among students varied. As shown in Table 2, more than half of the students (57.6%) rated their knowledge of Anaesthesiology as “Good”, and 36.7% as “Fair”. Only 2.9% considered their knowledge to be “Very Good”, while 2.2% and 0.7% rated it as “Poor” and “Very Poor”, respectively. This distribution suggests that although students are aware of the specialty, confidence in their understanding of its full scope remains limited. This may be attributed to short clinical rotations and limited interaction with anaesthesia professionals.

Subspecialty recognition was also assessed. While most students correctly identified Obstetric Anaesthesia (80.6%),

Pain Management (77.7%), and Paediatric Anaesthesia (74.1%), recognition dropped for Intensive/Critical Care (66.2%), Cardiac Anaesthesia (53.2%), and Neuro-Anaesthesia (50.4%). These results point to gaps in the coverage of important Anaesthesiology subspecialties in the local medical curriculum.

Similarly, when students were asked about the clinical applications of anaesthesia, a high percentage identified its role in dental procedures (91.4%) and labour and delivery (86.3%). However, fewer students recognized its uses in psychiatric and psychological care (15.1%) or in research (23.0%), indicating a limited understanding of Anaesthesiology’s broader clinical and academic relevance.

➤ Exposure and Experience

Nearly all students (99.3%) reported having been exposed to Anaesthesiology during their medical education. However, the duration and depth of this exposure were limited. More than half (51.8%) experienced only two weeks of clinical rotation, 39.6% had just one week, and 8.6% reported three weeks. This relatively short engagement may not provide sufficient insight into the complexity and scope of Anaesthesiology.

When asked about personal experiences with anaesthesia (as patients), only 28.8% of the students had previously undergone a surgical procedure requiring anaesthesia. The most reported procedures were appendectomies (9.4%), dental extractions (5.8%), and hernia repairs (4.3%). These personal encounters, though limited, may enhance appreciation of the specialty’s role in clinical care.

Table 2: Knowledge and Level of Awareness of Anaesthesia as a Specialty among Final-Year Medical Students (N = 139).

VARIABLES			
QUESTIONS	PARAMETERS	RESPONSES	
How would you rate your knowledge of anaesthesia?	Good	80(57.6%)	
	Fair	51(36.7%)	
	Very Good	4(2.9%)	
	Poor	3(2.2%)	
	Very Poor	1(0.7%)	
Anaesthesiologists are an essential part of the surgical team	Strongly Agree	91(65.5%)	
	Agree	27(19.4%)	
	Strongly Disagree	20(14.4%)	
	Neutral	1(0.7%)	
		YES	NO
Are you Aware of Anaesthesiology as a Surgical Specialty on its own		139(100%)	0(0%)
Which of the following do you recognize as subspecialties within Anaesthesiology?	Paediatric anesthesia	103(74.1%)	36 (25.9%)
	Cardiac anesthesia	74(53.2%)	65(46.8%)
	Obstetric anesthesia	112(80.6%)	27(19.4%)
	Neuro-anesthesia	70(50.4%)	69(49.6%)
	Pain management	108(77.7%)	31(22.3%)
	Intensive care/ Critical care	92(66.2%)	47(33.8%)
Which of the following do you think is/are uses of Anaesthesiology?	Pain Managements in Chronic Conditions	127(91.4%)	12(8.6%)
	Labor and Delivery	120(86.3%)	19(13.7%)
	Endoscopic Procedures	72(51.8%)	67(48.2%)
	Dental Procedures	127(91.4%)	12(8.6%)
	Palliative Care	76(54.7%)	63(45.3%)
	Psychiatric and Psychological applications	21(15.1%)	118(84.9%)
	Ambulatory or Outpatient Procedures	36(25.9%)	103(74.1%)
	Sports medicine	56(40.3%)	83(59.7%)
	Cosmetic Procedures	59(42.4%)	80(57.6%)
	Veterinary Anaesthesia	53(38.1%)	86(61.9%)
	Research Searching	32(23.0%)	107(77.0%)

➤ *Interest in Anaesthesiology as a Career Pathway*• *Interest Level*

One of the key objectives of this study was to assess the interest of final-year medical students in Anaesthesiology as a future career. As shown in Table 3 and Figure 1, only 4.3% of the respondents expressed interest in pursuing Anaesthesiology, while 33.8% were not interested, and a notable 61.9% remained undecided. This substantial gap between awareness and genuine interest in the specialty underscores the need for targeted interventions by medical educators and stakeholders to improve visibility and motivation toward Anaesthesiology.

Table 3: Level of Interest in Anaesthesiology

PARAMETERS	YES	NO	NOT SURE
Are you interested in pursuing anesthesia as a career?	6(4.3%)	47(33.8%)	86(61.9%)

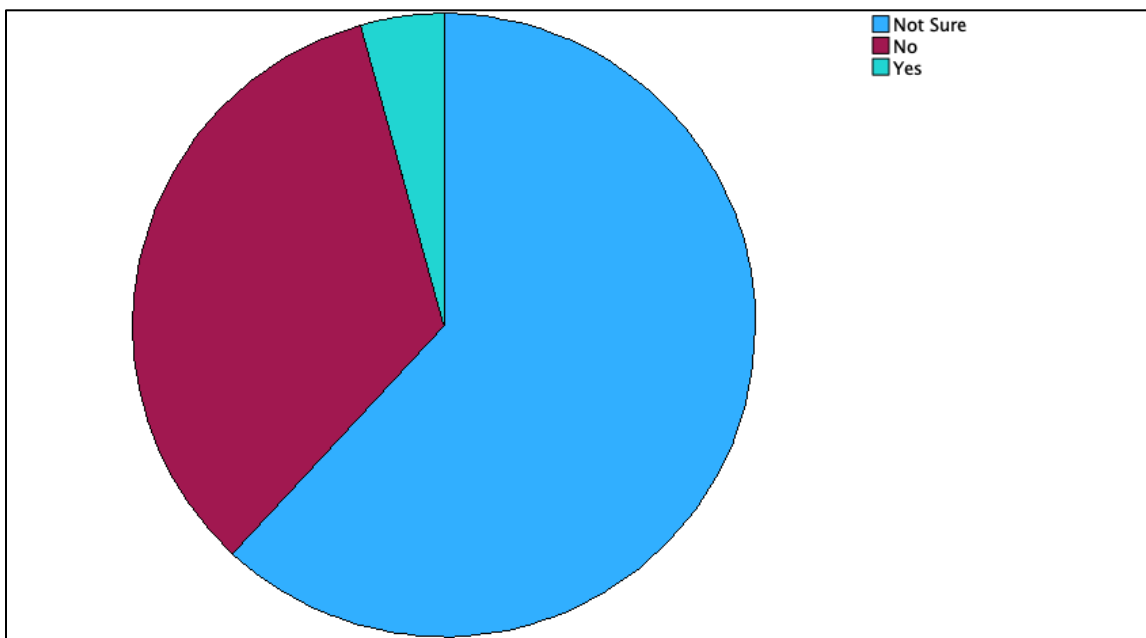


Fig 1. Pie Chart Showing Students' Interest in Anaesthesiology

• General Specialty Preferences

When students were asked about their preferred medical specialties, Anaesthesiology ranked among the least chosen. The most preferred specialties were Obstetrics and Gynaecology (28.8%), followed by Internal Medicine (16.5%), Paediatric Surgery (14.4%), and General Surgery (12.2%). These findings are consistent with patterns observed in other low- and middle-income countries, where Anaesthesiology often garners less interest due to its lower visibility during training.

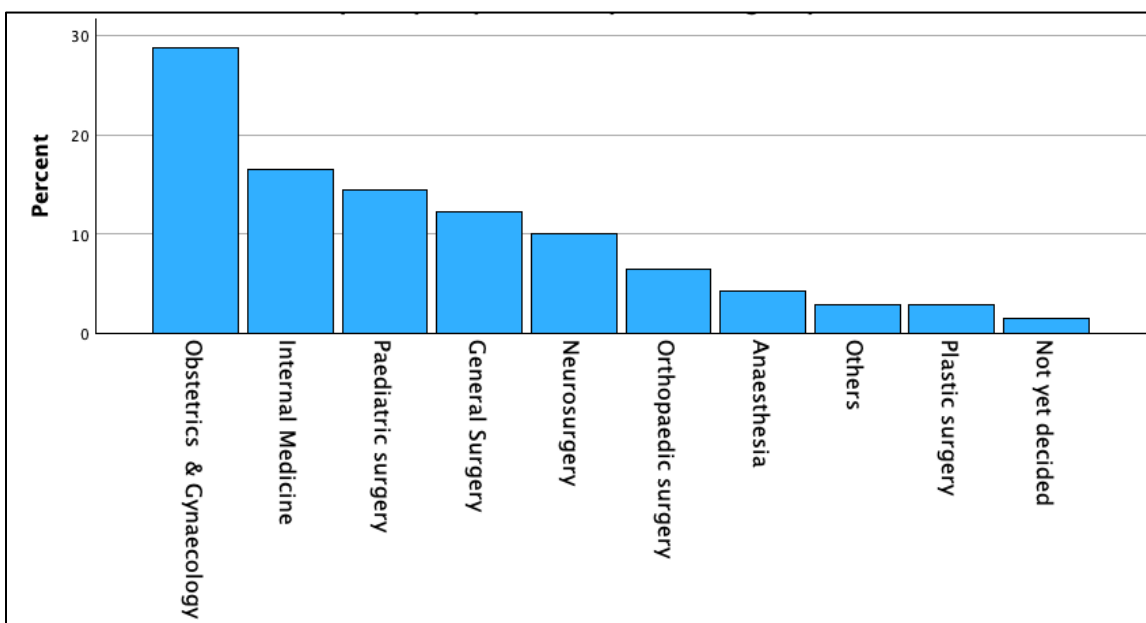


Fig 2. Bar Chart Showing Students' Specialty Preferences

➤ Factors Influencing Career Interest in Anaesthesiology

- To understand the drivers and barriers affecting students' specialty choice, respondents were asked to identify factors influencing their interest, disinterest, or indecision regarding Anaesthesiology.
- Among the 6 students who expressed interest, common motivating factors included:
- Enjoyment of the practice (3.6%)

- Perceiving the field as interesting (3.6%)
- Better work-life balance (2.9%)
- Good mentorship (2.2%)
- Potential for high income (2.2%)
- Conversely, those not interested in Anaesthesiology cited:
- Limited mentorship opportunities (21.6%)
- Short duration of exposure in training (21.6%)
- Misconception that anaesthetists work only behind the scenes (13.7%)
- Job insecurity (7.9%)
- Lack of understanding of career prospects (15.1%)
- Of the 86 students who were unsure, the most suggested ways to improve interest included:
- Increased mentorship (48.9%)
- More extensive clinical exposure (43.2%)
- Improved teaching and lectures (30.9%)
- These findings indicate that while interest is currently low, many students remain open to considering Anaesthesiology if adequate exposure, guidance, and structured mentorship are introduced during their training.

Table 4. Factors Affecting Interest in Anaesthesiology

QUESTIONS	VARIABLES	RESPONSES(N=6)	
	PARAMETERS	YES	NO
If yes (If you are interested in Pursuing Anaesthesiology), what factors influence your interest in pursuing Anesthesiology as a specialty?	Good Mentorship	3(2.2%)	3(2.2%)
	Like the practice of anaesthesia	5(3.6%)	1(0.7)
	Felt anaesthesia is interesting	5(3.6%)	1(0.7%)
	It takes shorter time to train to become anaesthetists	1(0.7%)	5(3.6%)
	Availability of spare time	4(2.9%)	2(1.4%)
	It is a practical Work	3(2.2%)	3(2.2%)
	Potentially high income	3(2.2%)	3(2.2%)
	Wide spectrum of specialties	1(0.7%)	5(3.6%)
	Family pressure	0(0%)	6(4.3%)
	Limited Mentorship	30(21.6%)	17(12.2%)
If NO(If you are not interested in pursuing Anaesthesiology), what factors influence your disinterest in anesthesiology	Short time of exposure during medical school	30(21.6%)	17(12.2%)
	I think it is mainly a work for the nurses	5(3.6%)	42(30.2%)
	Anesthetists only work behind the scenes(they are not noticed)	19(13.7%)	28(20.1%)
	No financial Inducement	8(5.8%)	39(28.1%)
	Lack of Jobs in Sierra Leone	11(7.9%)	36(25.9%)
	Lack of knowledge about possibilities of work & career in the specialty	21(15.1%)	26(18.7%)
	Boring, stressful, and frightening because it is more exciting to be hands-on than in the background	23(16.5%)	24(17.3%)
	Increased Mentorship opportunities	68(48.9%)	17(12.2%)
If you are not sure (If you are yet to decide to pursue Anaesthesiology), what factors will boost your interest?	Increased time of exposure or clinical rotations during medical school	60(43.2%)	25(18.0%)
	Increased Job Opportunity	46(33.1%)	39(28.1%)
	Increased work life balance	35(25.2%)	50(36.0%)
	Increased time and number of teaching/lectures for anaesthesia	43(30.9%)	42(30.2%)
	Increased student motivation	35(25.2%)	50(36.0%)
	Increased sensitization on the importance of the specialty and the benefits in it	27(19.4%)	58(41.7%)

➤ *Perceptions and Misconceptions about Anaesthesiology*

- Despite universal awareness, several misconceptions and negative perceptions persist among students. Notably:
- 38.8% believed anaesthetists are not visible or recognized within the health system.
- 64.7% viewed them as mere surgical assistants.
- 21.6% assumed anaesthetists can only work in operating theatres.
- 47.5% believed anaesthetists have limited patient interaction.
- 33.1% thought Anaesthesiology is a field primarily for nurses.

➤ *Other Notable Beliefs Included:*

- Anaesthesiology has no place in primary healthcare (20.1%)
- It is for those who find other specialties too difficult (17.3%)
- There is limited opportunity for career growth or recognition compared to other specialties

However, there were encouraging insights as well: 80.6% of respondents acknowledged that Anaesthesiology offers opportunities for professional growth, including research, teaching, and clinical expertise development. This reflects the potential for reshaping perceptions with improved visibility and academic emphasis on the specialty.

V. DISCUSSION

This study assessed the knowledge, awareness, interest, and perceptions of final-year medical students at COMAHS, University of Sierra Leone, regarding Anaesthesiology as a career option. Despite the 100% awareness reported (Table 2), only 4.3% of students expressed a desire to specialize in Anaesthesiology (Table 3, Figure 1). This highlights a critical disconnect between awareness and actual career interest, a pattern that mirrors findings in other low- and middle-income countries (Agarwal et al., 2015; AlKhilawi et al., 2018).

A major contributing factor appears to be delayed exposure, as most students became aware of Anaesthesiology only in their fourth year of training. Similarly, the duration of clinical rotations was short, with over 90% receiving two weeks or less exposure (Exposure and Experience Section). This limited experience may prevent students from fully appreciating the complexity and scope of Anaesthesiology. Okeke et al. (2024a) observed similar trends in Nigerian medical schools, where brief or inconsistent clinical exposure contributed to weak understanding and low interest in Anaesthesiology as a specialty.

The limited recognition of subspecialties such as Neuro-anaesthesia and Cardiac Anaesthesia (only 50.4% and 53.2% respectively, Table 2) suggests that Anaesthesiology remains underrepresented in the curriculum. This is concerning, given

that anaesthetists today play significant roles in intensive care units, trauma resuscitation, and pain management (Yu, n.d.; WHO, 2018).

Interestingly, although Anaesthesiology was among the least preferred specialties (Figure 2), most students did not reject it due to negative stereotypes. Instead, the most cited reasons for disinterest included lack of mentorship (21.6%) and short exposure (21.6%) (Table 4). These barriers are not unique to Sierra Leone; similar constraints were reported by Ige et al. (2016) and Shahbaz and Howard (2024) in Sub-Saharan Africa and Pakistan, respectively.

On the other hand, students who were undecided (61.9%) offered practical suggestions that could positively influence their decision-making, including more mentorship (48.9%), increased clinical exposure (43.2%), and better teaching (30.9%). These findings are aligned with Walsh et al. (2023), who showed that structured academic exposure significantly increased interest in Anaesthesiology among Canadian students.

Common misconceptions also emerged as barriers: over 64% viewed anaesthetists as mere “surgical helpers”, 21.6% believed they only work in theatres, and 47.5% thought they have limited patient interaction (Section 4.5). These findings align with earlier work by Okonkwo et al. (2025), which found persistent myths about Anaesthesiology’s role, scope, and relevance. Correcting such misconceptions through curriculum reform, interactive learning, and visibility in multidisciplinary teams is crucial.

VI. LIMITATIONS

This study, while informative, has limitations. First, it was conducted in a single medical school (COMAHS), which may limit generalizability. Second, self-reported questionnaires are subject to social desirability and recall bias. Third, due to the descriptive design, causal relationships between exposure and career interest could not be established. Nonetheless, the findings provide critical insight into the current state of student perception toward Anaesthesiology in Sierra Leone.

VII. CONCLUSIONS

Despite widespread awareness of Anaesthesiology among final-year medical students at COMAHS, interest in pursuing it as a career remains significantly low. The study found that limited clinical exposure, lack of mentorship, and persistent misconceptions are key barriers. Conversely, many students remain undecided and potentially open to the specialty, provided that targeted educational interventions are implemented.

Given the critical shortage of Anaesthesiologists in Sierra Leone, this research underscores the urgent need for policy and curricular reforms to enhance the visibility and appeal of Anaesthesiology as a viable and fulfilling career. Recommendations include:

- Increasing structured exposure earlier in medical training
- Implementing mentorship programs led by practicing anaesthetists
- Correcting misconceptions through integrated, interdisciplinary teaching
- Addressing these gaps can contribute to better workforce distribution, improved surgical safety, and overall healthcare system strengthening in Sierra Leone and similar low-resource settings.

DECLARATIONS

➤ *Ethics and Consent to Participate*

Ethical approval for this study was obtained from the Faculty of Clinical Sciences, College of Medicine and Allied Health Sciences (COMAHS), University of Sierra Leone. A formal request was submitted to the Dean of the Faculty of Clinical Sciences and Dentistry, and permission was granted. All participants were informed about the purpose of the study, and written informed consent was obtained. Participation was voluntary, and students were free to withdraw at any stage without any repercussions.

To ensure confidentiality, all data were anonymized and stored on a password-protected computer accessible only to the supervisor and Co-supervisor. Personal identifiers were excluded from all analyses and reporting.

➤ *Competing Interests*

The authors declare that they have no competing interests.

➤ *Funding*

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➤ *Plans for Dissemination*

The findings of this research will be shared with the Department of Anaesthesiology at COMAHS to inform future educational strategies. The results may also be published in peer-reviewed journals and presented at academic forums, with all participant data remaining confidential.

➤ *Authors' Contributions*

Dr. Eva Hanciles, Consultant Anaesthesiologist, supervised the study design, provided expert input on content related to Anaesthesiology, and contributed to the interpretation of findings

Abdulai Turay served as the co-supervisor of the study and provided guidance on data analysis and manuscript preparation.

Abu Kanu is responsible for data collection, entry, and initial analysis. All authors reviewed and approved the final version of the manuscript.

Dr. Kai Jabba collaborated with Pharm Abdulai Turay as a co-supervisor of the study and provided guidance on data analysis and manuscript preparation.

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